

Name _____

Period _____

Chemistry I

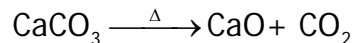
Stoichiometry

2013

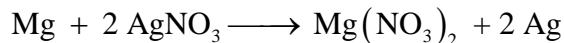


Stoichiometry Problem Worksheet A **Show ALL work for stoichiometry problems.**

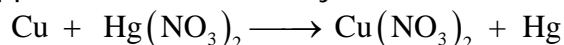
1. How many moles of calcium oxide can be prepared from 5 moles of calcium carbonate?



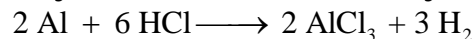
2. How many moles of magnesium metal are needed to produce 1.0 mole of silver metal?



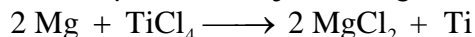
3. If 5.5 moles of copper react with mercury II nitrate, how many moles of mercury are produced?



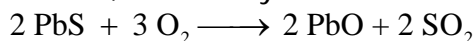
4. When 6.5 moles of aluminum metal react with hydrochloric acid, how many moles of aluminum chloride are produced?



5. How many moles of titanium metal are produced by reacting 15.00 moles of titanium chloride with magnesium?



6. If 4.8 moles of lead sulfide are roasted, how many moles of sulfur dioxide are produced?



7. How many moles of hydrogen chloride are produced when sulfuric acid reacts with 19.0 moles of pure sodium chloride? $2 \text{ NaCl} + \text{H}_2\text{SO}_4 \longrightarrow 2 \text{ HCl} + \text{Na}_2\text{SO}_4$

8. In the decomposition of 144 moles of water by electrolysis, how many moles of oxygen gas are produced? $2 \text{ H}_2\text{O} \xrightarrow{\text{electricity}} 2 \text{ H}_2 + \text{O}_2$

9. How many moles of hydrogen chloride can be made from 0.75 moles of Cl_2 ?
 $\text{H}_2 + \text{Cl}_2 \longrightarrow 2 \text{ HCl}$

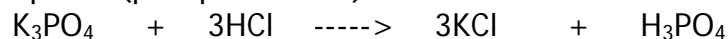
10. How many moles of Cl_2 are produced from 6.75 moles of hydrogen chloride?
 $4 \text{ HCl} + \text{O}_2 \xrightarrow{\text{electricity}} 2 \text{ H}_2\text{O} + \text{Cl}_2$

11. How many moles of sulfur are needed in the production of 1800 moles of sulfur dioxide? (What's the mole ratio?) $\text{S}_8 + 8 \text{ O}_2 \longrightarrow 8 \text{ SO}_2$

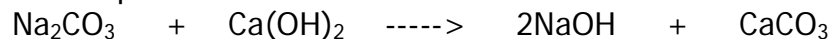
12. How many grams of sodium bromide are needed to make 50 grams of bromine gas from sodium bromide? $2 \text{ NaBr} + \text{Cl}_2 \longrightarrow 2 \text{ NaCl} + \text{Br}_2$

13. How many grams of potassium permanganate are needed to produce 1.75 moles of manganese chloride? $16 \text{ HCl} + 2 \text{ KMnO}_4 \longrightarrow 2 \text{ MnCl}_2 + 2 \text{ KCl} + \text{H}_2\text{O} + 5 \text{ Cl}_2$

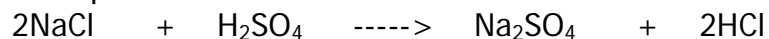
14. If 120 g of potassium phosphate react with hydrogen chloride, how many grams of hydrogen phosphate (phosphoric acid) are formed?



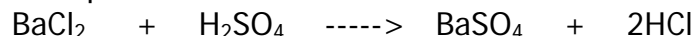
15. When 80.0 grams of sodium carbonate react with calcium hydroxide, what mass of calcium carbonate is produced?



16. If 90.0 grams of sodium chloride react with sulfuric acid, how many grams of sodium sulfate are produced?



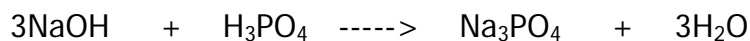
17. If 100.0 grams of barium chloride react with sulfuric acid, how many grams of barium sulfate are produced?



18. How many grams of oxygen will be produced by decomposing 480 grams of potassium chlorate?



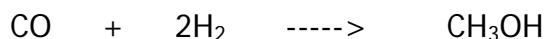
19. How many grams of sodium hydroxide will react with 150 grams of phosphoric acid?



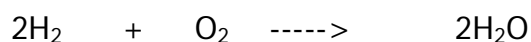
20. If 120 grams of mercury (II) oxide are decomposed by heat, what volume of oxygen is produced?



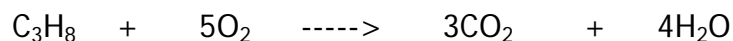
21. In the production of methanol, how many liters of hydrogen are needed to react with 500 liters of carbon monoxide?



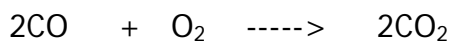
22. To produce water, how many liters of oxygen are needed to react with 600 liters of hydrogen?



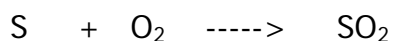
23. If 200 liters of propane are burned, what volume of carbon dioxide is produced?



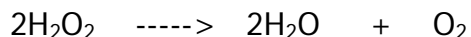
24. How many liters of carbon dioxide do oxidizing 500 liters of carbon monoxide gas produce?



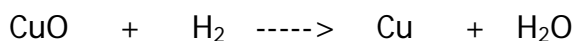
25. How many liters of oxygen are needed to react with sulfur to produce 7000 liters of sulfur dioxide?



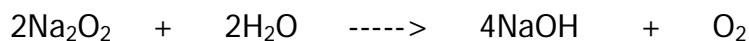
26. When 70 grams of hydrogen peroxide are decomposed by light, how many liters of oxygen are released?



27. In the reduction of 100.0 grams of copper II oxide, how many liters of hydrogen are needed?



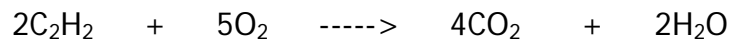
28. How many grams of dihydrogen monoxide must react with sodium peroxide to produce 75.0 grams of sodium hydroxide?



29. In the Haber process for making ammonia, how many liters of ammonia gas are produced when 4600 liters of nitrogen gas is used?

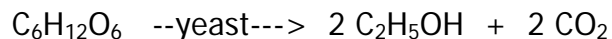


30. How many liters of oxygen are required to completely burn 800 liters of acetylene gas?

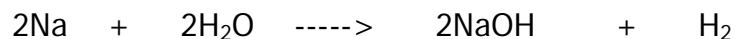


31. In the fermentation process, glucose can be converted to ethanol. How many milliliters of ethanol will be produced if 88000 gm of glucose are fermented?

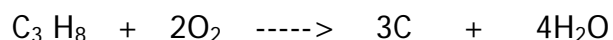
(HINT: 1. find the number of grams of ethanol 2. Then use 0.8 g/mL to convert grams to mL.)



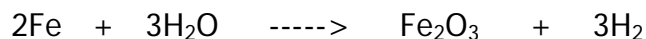
32. If 25 liters of hydrogen are produced by the reaction of sodium metal and water, how many grams of sodium hydroxide can be produced?



33. During the incomplete combustion of 7000 L of propane, how many grams of soot (C) are produced?



34. Calculate the mass of iron reacting with steam to produce 7500 grams of rust (Fe_2O_3)



35. If 500 grams of calcium carbide react with water, what volume of acetylene gas is produced?

